

THE
RATIONAL DAME:

OR,

HINTS TOWARDS SUPPLYING

P R A T T L E

FOR

C H I L D R E N.

The FOURTH EDITION.

“ We cannot see GOD, for he is invisible ; but we can
see his Works ; and worship him for his Gifts.”

Hymns in Prose for Children.

D U B L I N:

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For T. JACKSON, 23, PARLIAMENT-STREET.

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P R E F A C E.

TO neglect BEGINNINGS, is the fundamental error into which most parents fall.

CHILDREN frequently receive their first notions from the most illiterate persons: hence it is the business of some years to make them unlearn what they acquired in the nursery.

OUR earliest infancy is disregarded; and when we are taken under tuition, what are we taught? to repeat by rote what we neither understand, nor regard; to—but I forbear; suffice it to say, that common sense, unbiassed by vanity, would teach us, that the knowledge best suited to the inclinations and capacities of children, is the name and nature of those objects with which they are surrounded. Who but recollects the tender scene in *Homer*, where *Ulysses* recalls the idea of his childhood?

“ While yet a child, these fields I lov’d to trace,
“ And trod thy footsteps with unequal pace;
“ To ev’ry plant in order as we came,
“ Well pleas’d you told its nature and its name.”

What employment could be more delightful to a mother, than thus,

“ Dispensing knowledge from the lips of love ? ”

PROVIDENCE has implanted in children an insatiable desire for information ; talk to a child of an object which has caught his attention and fear not, but he will,

“ With greedy ear devour up your discourse.”

CURIOSITY is in children an *appetite* craving perpetually for food ; but, alas ! how often are its cravings disregarded ; or, still worse, appeased with trash !

A CHILD is generally inquisitive in proportion to its vivacity ; much discretion is required on the part of a mother, daily, hourly required, in gratifying the incessant inquiries of a sprightly apprehensive child.

To form the constitution, disposition, and habits of a child, constitutes the chief duty of a mother.

IN making amusement the vehicle of instruction, consists the general secret of early education.

WHAT is communicated as a gratification, being received with delight, will be ever retained.

EARLY

EARLY impressions are, perhaps, never totally erased—who forgets the nonsense of the nursery? Prepossessions, therefore, cannot be unimportant.

ANIMATED nature draws the attention of even infants; but it is our misfortune to be surrounded, during infancy, by folly, ignorance, and prejudice.

AT the first dawn of reason, nurses instil notions which are scarcely ever entirely laid aside; at least it costs us some trouble to “root the old woman out of our minds.” Hence, in our sex (among other follies) groundless fears of insects, and innocent reptiles; hence, in the rougher sex, want of tenderness to them; arising from an early abhorrence excited by foolish persons.

PERHAPS nothing could more effectually tend to infuse benevolence than the teaching of little ones early to consider every part of animated nature as endued with feeling; as beings capable of enjoying pleasure, or suffering pain: than to lead them gently and insensibly to a knowledge how much we are indebted to the animal creation; so that to treat them with kindness is but justice and gratitude. We should inculcate incessantly that man is the

lord, but ought not to be the *tyrant* of the world.

EXCITED by the beauty and vivacity of the objects, children can hardly be restrained from handling insects. Explain to them that the butterfly is a creature, formed by that hand which made themselves ; and formed to enjoy happiness ; relate to them the wonders of its transformation ; teach them to rejoice in the satisfaction which it appears to have as it flutters in the garden ; inform them that they have no right to interrupt its enjoyments ; but invite them to admire the elegance of its wings, &c.

“ *Le sage entend, &c.*”

UNDER the inspection of a judicious mother, much knowledge may be acquired whilst little people are enjoying the recreation of a walk : queries arise spontaneously from the scene ; affection seizes the occasion, and expatiates on the subject of inquiry, so long as the eager desire of information subsists ; which is commonly till some new object attracts notice. Innumerable occasions for information arise ; to the child the world is new ; the lovely stranger looks around ; surveys each object

object with smiling wonder ; and longs to be acquainted with every thing which he sees.

INFANTS learn much before they speak ; and would learn much more than they do, were they not nursed in the lap of Folly.

WOULD mothers be persuaded to rear the being to which they have given birth ; what might—what might *not* be done ? The watchful eye of *maternal* tenderness alone can descry the moment when attention awakens or flags ; *maternal* affection alone can supply assiduity, patience, and condescension for unremitting infusions of simple, clear, and just ideas.

MERELY to know the right names of things is a step towards receiving further information ; and, in fact, knowledge of *names* forms a considerable part of the education of an infant. For children a little further advanced, the names and figures, of plants, animals, &c. will supply as good an exercise as they can have for their memory.

CHILDREN listen with avidity to tales—let us give them none but rational information—relate to them the metamorphoses of insects—amuse them with real wonders—entertain them with agreeable surprises—but no deceit ;

tell

tell them plain, simple truth—there is no need of invention ; the world is full of wonders—banishing all fabulous narratives, let us introduce our little people to the wonders of the insect world.

IT is my ambition to have my little volume be the pocket companion of young mothers when they walk abroad with their children : it is my wish to assist them in the delightful task of forming in those children a habit of amusing themselves in a rational manner during their hours of leisure—in teaching them

“ To look from nature, up to nature’s God.”

I MEAN this little work as an introduction for young children ; or occasionally for their attendants, to enable them to answer inquiries ; but I repeat, that a sensible well informed MOTHER can alone come up to my idea of

A RATIONAL DAME.

E X T R A C T S

From superior writers, whose sentiments agree with those of the Compiler of this little volume.

“ THE first view of objects of sense excites curiosity; a most powerful and universal passion; by which children are strongly actuated, and which will spare an able instructor the trouble of goading them, on: all his business is to direct them, and to excite this passion on proper occasions.”

“ LET us avail ourselves of the curiosity of children; let us present to their minds ideas which are simple and easy to be comprehended; and in speaking to them of God impress their minds with the idea of a *Father and Benefactor*: let us lead them from a view of the world to the contemplation of its Author; and represent God to them as the common *Parent of Mankind*, who has created them with a design to render them happy.

“ LET

“ LET us endeavour to lead them to reflect upon the wisdom and goodness of God in the works of creation.”

“ THE faculty which it is the most difficult to induce children to exercise is that of reflection ; this is an exertion of the mind which is irksome even to men, unless they have been accustomed to it. Hence children seldom reflect ; and whenever they do, it is only for a moment. It therefore requires, by judicious management, to lead them into a train of consistent and solid reflections.”

Extract in Monthly Review.”

“ LET it be the constant aim of parents, to impress devotional feelings as early as possible on the infant mind : they cannot be impressed too soon ; a child, to feel the full force of the idea of God, ought never to remember the time when he had no such idea ; impress them by connecting religion with a variety of sensible objects ; with all that he sees, all he hears, all that affects his young mind with wonder or delight ; and thus, by deep, strong, and permanent associations, you lay the best foundation for practical devotion in future life.”

“ FOR

“ FOR he who has early been accustomed to see the Creator in the visible appearances of all around him, to feel his continual presence, and lean upon his daily protection, has made large advances towards that habitual piety, without which religion can scarcely regulate the conduct, and will never warm the heart.”

Preface to Hymns in Prose:

“ EVERY thing that tends to make early impressions of tenderness on the minds of young children, should be well received. Cruelty to any thing that God has endued with feeling, is the worst depravity of human nature; and it is always with inexpressible concern that we see the seeds of this vice thoughtlessly sown by unfeeling parents, nurses, &c. and habits of barbarity rooted in the tempers of infants, by giving them little animals, birds, and insects to play with, and torment, by way of amusement. Thus they are early taught to make slight account of the lives or painful sensations, of such poor dumb sufferers as have the misfortune to fall into their hands: and hence we are not to wonder at the unconcern with which, when grown up,

up, they rob the innocent feathered tribe of their callow progeny, &c. &c.”*

Monthly Review.

“ CHILDREN are certainly capable of receiving impressions of tenderness and compassion, as soon as they are capable of any thing at all ; and therefore they should be early taught to treat all created beings which are capable of feeling pain, with mercy and compassion : by which means a beneficent temper would become habitual to them, as having the advantage of prepossession, and so not easily eradicated from tender minds.—Being thus trained up to take delight in showing mercy, they would by degrees acquire the god-like virtue of universal benevolence. Experience abundantly declares the sad effects of the contrary practice. While children are suffered at first to torment poor little insects, and then learn the custom of making miserable

* The Author of this little volume has lately met with **FABULOUS HISTORIES**, written purposely to teach the *proper treatment of Animals* ; and wishes to recommend it to her readers as a publication which does honour to the benevolent writer, *Mrs. Trimmer.*

every

every helpless creature that falls in their way, or that they can diligently seek out, they, by degrees, get a habit of oppression and cruelty."

Monthly Review, Remarks and Extracts.

B

T H E

THE RATIONAL DAME.

ANIMAL WORLD.

THE animal world sets before us the most evident appearances of the Divine Wisdom, Power, and Goodness.

As the government of all creatures is committed to man by the Creator, it must be considered as a *trust*, which we are seriously and faithfully to discharge.

A *righteous man*, who doeth good from a sense of duty, regardeth *the life of his beast*: he abstains from all cruelty; he rewards the labour of his brute servants and domestics, and delights to render their lives as easy and comfortable as he can; knowing that he must give an account of this *trust*. In their natural capacities, he uses them for his benefit with

thankfulness to their Maker ; in their intellectual application, he derives improvement to his mind from the contemplation of their natures.*

INSTINCT.

FROM the consideration of those wonderful instincts which are found in living creatures, it should be our earnest desire, and our highest ambition, to have God for our teacher.

THE spider spreads and suspends its web by the nicest rules of art. The bird weaves a nest of untractable materials, which it disposes and adjusts without any difficulty. The bee designs, with unerring skill, what no geometricalian could teach, and measures its work in the dark, &c.

USEFUL-

* The compiler of this little work presumes, that every attentive parent peruses a book before she allows her child to look into it ; but this will require something further. Where the style is above the comprehension of the little one, on whose account it might be purchased ; (as being taken from works by no means designed for children) a mother will doubtless have pleasure in *translating* it into easy, familiar language ; such as is suited to the capacity and attainment of her little companion.

USEFULNESS of CATTLE.

THE usefulness of cattle to the support, comfort and convenience of man, is a topic that would carry us out to a great length.

THE state of man, as an inhabitant of this world, could not be maintained without them.

FROM cattle we have food, and raiment, and assistance, and employment.

How wisely and mercifully is it ordained, that those creatures which afford us wholesome nourishment, are disposed to live with us, that we may live upon them. Their milk is so agreeable to the human constitution, and so pleasant in itself, that it is celebrated among the first blessings of the promised land.

THE wool of the sheep gives us cloathing, such as the world cannot equal.

WHAT would the labour of man avail, without the strength and patience of beasts to assist him in the cultivation of the earth, and the necessary busines of life?

EVEN the fiercest of creatures have their use, &c.*

CHARAC.

* If the curiosity of the little person who receives this information be judiciously managed, he will here inquire with some eagerness, "What is their use?" and

CHARACTER of ANIMALS.

THE law of *Moses* (Lev. ii.) divides the brute creation into two grand parties, from the fashion of their feet, and their manner of feeding; that is, from the *parting of the hoof* and the *chewing of the cud*; which properties are indications of their general characters, as *wild* or *tame*. For the *dividing of the hoof* and the *chewing of the cud* are peculiar to those cattle which are serviceable to man's life, as *sheep, oxen, goats, and deer.*

THESE are shod by the creator for a peaceable and inoffensive progres through life. They live temperately upon herbage; and, after the taking of their food, chew it deliberately over again for digestion; in which act they have all the appearance a brute can assume of pensiveness or meditation; which is metaphorically called *rumination*, with reference to this property of certain animals.

SUCH are the *tame* cattle; but when we compare the beasts of the field and the forest, they, instead of the harmless hoof, have feet which are *swift to shed blood*, sharp claws to seize upon their prey, and teeth to devour it.

I know not how to direct any solution of the difficulty so well as by referring the teacher to the Sermon whence these extracts were taken.

SUCH

SUCH, *in a state of nature*, is the dog; such are the cat, fox, weazel, &c.

WHERE one of the Mosaic marks is found, and the other is wanting, such creatures are of a middle nature between the wild and the tame; as the *swine*, the *hare*, and some others.

THOSE that part the hoof afford us wholesome nourishment: those that are shod with any kind of hoof may be made useful to man; as the horse, the ass, &c. all of which are fit to travel, and carry burdens.

BUT when the foot is divided into many parts, and armed with claws, there is but small hope of the manners; such creatures being in general murderers, or hunters, or thieves.

WHO can review the creatures of God, as they arrange themselves under the two great denominations of wild and tame, without wondering at their different dispositions and ways of life! &c.*

See Considerations on the nature and Oeconomy of Beasts and cattle. A Sermon printed for Robinson, Pater-noster-row, London.

* Need it be hinted to mothers, that a long winded harangue is by no means adapted to children? no—remarks offered in short sentences (as occasion requires) or answers given to questions artfully introduced, are much more agreeable to them. The ox and sheep may serve as specimens.

H O O F E D

HOOFED ANIMALS.

Most of the hoofed animals are domestic; wild beasts are provided with feet and claws suited to the forming of dens and retreats from the inclemency of the weather; but the hoofed animals depend upon man for shelter and winter provision.

YET even our tame animals endure some degree of rigour; and to prevent inconvenience from cold, their feet are protected by strong hoofs of a horny substance. The tail too is guarded with long bushy hair that protects it from extremes of heat or cold; in summer it serves to brush away the insects, and in winter to guard them from the cold.

THE hoofed animals are very serviceable to us; those with whole hoofs (as the horse and ass) for carrying burdens; those with divided hoofs, as the ox, sheep, goat, and deer, supply us with food and cloathing.

*WHOLE HOOFED.**H O R S E.*

THE HORSE is a noble creature, and of great service to mankind; he performs with ease, what would be very laborious to man.

A HORSE

A HORSE knows his own stable ; he smells it at a great distance, and discovers a strong desire to return to it.

A HORSE distinguishes his companion, and neighs to him ; remembers any place at which he has once stopped, and will find his way home from a great distance ; and that even by a road which he has never travelled. A horse is very tractable, when he is taught ; his rider governs him by his sense of feeling ; by signs which he makes with the bit, his foot, his knee, or his whip.

THE HORSE sleeps little ; not above three or four hours in the twenty-four.

A HORSE is less useful to us when dead than some other animals are.

THE chief use of his skin is for collars, traces, and other parts of harness.

THE hair of the mane is of use in making wigs ; of the tail in making the bottoms of chairs, and floor-cloths, besides supplying the angler with fishing lines.

A S S.

WHY should an animal so good, so patient, and so useful, be treated with contempt ?

THE

THE horse we educate with great care ; we dress, attend, and exercise him ; whilst the poor ass is neglected.

THE ass is humble, patient, and quiet.

WE are told that the ass is remarkably attached to her young, and that they have a great affection for their masters.

WE think the ass stupid ; but he knows the place where his master stops, and the roads which he frequents.

THE ass sleeps less than the horse. An ass is the strongest animal which we know for his size.

THE ass is remarkably sure-footed ; he is hardy, and less delicate in the choice of his food than the horse, temperate, as well with respect to the quantity as the quality of his provisions ; a few neglected weeds satisfy his appetite ; if he gives the preference to any vegetable, it seems to be the plantane, for which he is often observed to neglect other herbs. But the ass, though he seems to be so indifferent as to food, is said to be peculiarly delicate in his choice of water, drinking only at the clearest brooks.

CLOVEN HOOFED.

O X.

Ox is the family name for kine, or cattle of the cow kind.

THE flesh of an ox is beef.

AN ox is a very useful animal.

OXEN can draw great weights ; they are slow in their motion ; but very strong.

AN ox is sometimes used to draw the plow, or cart ; thus he is of great use to us whilst he is alive ; and after his death every part of him is useful.

HIS flesh supplies us with food ; the blood is used as manure ; and to make a fine blue colour.

THE dung is a fine manure ; and used in dying calico.

THE fat is made into candles. The hide into shoes and boots. The hair is mixed with mortar.

THE horn is made into various things : combs, boxes, handles for knives ; it is made into drinking cups ; besides being used, instead of glass, for stable lanterns.

CHIPS

CHIPS of the hoofs, and parings of the hide
make carpenter's glue.

THE bones are used to make little spoons,
knives and forks for children, buttons, &c.
which look like ivory, and are cheaper.

THE guts are used in beating gold into thin
leaf ; and then applied to fresh wounds ; we
call it gold-beater's skin.

THE milch cattle we call cows. You
know what excellent food milk is ; of milk
we make cheese ; from milk we skim cream ;
of the cream we make butter ; and variety of
delicate kinds of food. A calf is the young
one. The calf supplies us with food ; his
flesh is veal. Vellum is made of his skin.
The common people wear waist-coats made
of calf-skin tanned with the hair on.

S H E E P.

SHEEP supply us with food ; their flesh is
mutton.

SHEEP supply us with cloaths too ; the
wool is made into cloth, flannel, and worsted
stockings.

THE skin is leather, which is of use to
wear, and for covers of books. The entrails
are twisted into strings for fiddles. The dung
is spread upon the earth, to enrich it ; we call
it

it ; we call it manure. The young is called lamb. The ewe is the lamb's mother.

A Sheep is a timid animal ; and runs away from a dog ; yet an ewe will face a dog, when her lamb is by her side ; she thinks not then of herself ; but will stamp with her feet ; and push with her head ; seeming to have no fear. Such is the love of mothers !

G O A T.

A Goat is like a sheep ; but the goat has no wool ; he has hair. The white hair is valuable for wigs. Cloth may be made of the goat's hair. The skin of the goat is more useful than that of the sheep. A Goat seems to have more sense than a sheep.

GOATS love to feed upon hills ; they are fond of browsing upon vines ; and delight in the bark of young trees.

GOATS live among mountains ; they climb the steepest rocks ; and spring from brow to brow.

THE young is called kid. The flesh of kids is good food. Gloves are made of their skin. The milk of goats is drank by weakly persons.

D E E R.

DEER shed their horns annually in the spring: if the old horns do not fall off without, the animal rubs them gently against the branches of trees. The new horns are tender, and the deer walk with their heads low, to prevent them from rubbing against the branches; when they are full grown and hard, the deer rub them against the trees, to clear them of a skin, with which they are covered. The skins of deer are of use for leather. The horns make good handles for common knives, &c. Spirit of hartshorn is extracted from them; and hartshorn shavings are made. The flesh of deer is highly esteemed; we eat it by the name of venison. Fawns are less commonly eaten.

H O G.

THE Hog appears to have a divided hoof, like the peaceable animals which we call cattle: but he really has the bones of his feet like those of a beast of prey; and a wild hog is a very savage animal.

SWINE have always been esteemed proverbially untractable and stupid; incapable of tuition; but it does appear that even a pig may be taught—what cannot perseverance effect?

A Hog

A Hog is a disgusting animal ; he is filthy, greedy, stubborn ; but he is very useful at his death.

His flesh is pork ; the lard is used in medicine, for plasters, and pomatum ; the bristles are used to make brushes with.

HOGS are voracious animals ; devouring, without much distinction, whatever they meet with.

PIGS scarcely know their own mother ; hogs will devour their own young : the habits and manners of swine are all disgusting ; they wallow in the mire to cool themselves, and kill vermin.

THE parts of this animal are adapted to its way of life : as its method of feeding is by turning up the earth with its nose, for roots of different kinds, so nature has given it a more prone form than other animals ; a strong neck, eyes small, and placed high in the head ; a long snout, a nose callous, and tough, and a quick sense of smelling to trace out its food.

THE Hog seems to form a link between the hoofed and digitated animals ; or rather to be an outcast from both. The flesh of swine was forbidden to be eaten by the people of God : these animals being remarkably glutinous and filthy, the prohibition was to them a lesson of temperance.

SWINE have distinguishing palates ; and, where they find plenty of delicious food, are nice in their choice ; but the voraciousness of their appetite overcomes their delicacy ; and they greedily swallow whatever will appease their hunger ; thus (see the ways of Providence !) to the gluttony of the hog we are indebted for a very essential service ; that of removing such filth as would prove a nuisance, were it suffered to remain ; and this animal, after devouring the refuse of all others, himself supplies us with excellent food.

D I G I T A T E D,

Or C L A W E D,

Having their Feet divided into Toes.

C A T.

THE Cat has sharp claws ; but she draws them back when you carefs her ; then her foot is as soft as velvet.

CATS have much less sense than dogs, and less attachment ; their affection is more to the house, than to the persons who inhabit it.

THE young are kittens : the eyes of kittens remain closed for some days.

THE Cat, after suckling her young some time, presents them with mice or young birds.

CATS hunt by their eye ; they lie in wait, and spring upon their prey, which they catch by surprise ; then sport with, and torment the poor little animals before they kill them.

CATS see best in the gloom. In a strong light, the pupil of the cat's eye is contracted to a mere line ; by night it spreads into a large circle.

CATS live in the house, but are not subject to the owner ; they are self-willed and wayward.

CATS love perfumes ; they are very fond of marum and valerian. Cats dislike water, cold, and bad smells ; they love to bask in the sun ; and to lie on soft cushions.

THE teeth of cats are better formed for tearing their prey, than for chewing food. Cats will crush a mouse, and swallow it very speedily ; they swallow the fur and bones ; we are told that it is wholesome for them to do so ; the flesh alone would be too nourishing. Cats eat grafts as medicine. Cats are beasts of prey ; they are fond of fish, which they never could catch.

D O G.

THE Dog is gifted with that sagacity, vigilance, and fidelity, which qualify him to be the guard, the companion, the friend of man ; he will rather die by the side of his master, than take a bribe of a betrayer to betray him :* this animal is therefore made an example of fidelity.

No other animal is so much the companion of man as the Dog. The dog understands his master by the tone of his voice : nay, even by his look ; and is ready, and even eager to obey him.

Dogs are very serviceable to us. A Dog will conduct a flock of sheep ; he will use no roughness, but to those which straggle ; and then only to bring them back.

VARIOUS kinds of dogs are used, to procure various kinds of game.

THE Dog is said to be the only animal who always knows his master, and the friends of the family ; who distinguishes a stranger as soon as he arrives ; who understands his own

* My dog——
With gratitude inflames my mind :
I mark his true, his faithful way,
And in my service copy Tray. Gay.

name

name and the voice of the domestics ; and who calls on his lost master by cries and lamentations.

A Dog is the most sagacious animal we have : and the most capable of education.

IN most dogs the sense of smelling is keen. A Dog will hunt his game, by the scent which remains where it has passed. A Dog, in following his master, will stop where the roads cross, and (with his nose to the ground) try which way the scent is strongest, then pursue that. The sense whereby he is enabled to trace a single person through a crowd of people, is a gift of the Creator, which exceeds our comprehension.

A Dog is naturally a beast of prey, and would eat only flesh, yet dogs learn to eat the refuse of any kind of food, on which their masters live.

Dogs eat the tops of grass as a vomit.

THE young are puppies. The eyes of puppies continue closed some days after their birth.

F O X.

A Fox resembles, and is somewhat of the same nature as a wild dog ; but very different in his manner, from that faithful animal.

A Fox

A Fox will feed upon flesh of any kind ; but his favourite food is lambs, rabbits, hares, poultry, and feathered game.

A Fox, when urged by hunger, will eat carrots, and insects ; and those that live near the sea-coasts, will eat crabs, shrimps, or shell-fish, for want of other food.

IN *France* and *Italy* Foxes do great damage in the vineyards, by feeding on the grapes ; of which they are very fond. A Fox destroys many rats and field-mice, and, like the cat, will play with them some time before he puts them to death.

WHEN the Fox has caught a larger prey than he can devour at once, he does not begin to feed till he has secured a part ; which he does with great address, in the following manner. He digs holes in different places ; and returns to the spot where he left his booty ; and will carry off a whole flock of poultry, one by one, and thrust them in with his nose ; and then conceal them (by ramming the loose earth on them) till hunger leads him to pay them a visit.

A Fox has a very expressive eye ; is remarkably playful, and sports with his tail.

THE Fox retreats under ground ; his habitation consists of several apartments, with many entrances for security.

THE Fox quits his habitation in warm weather, to bask in the sun ; or enjoy the fresh air ; but then he rarely lies exposed ; but chooseth some thick bush, generally of furze, that he may rest secure from surprise.

Crows, magpies, and other birds, who consider the fox as their common enemy, will often point out his retreat, by their notes of anger. The skin of a fox is furnished with a soft warm fur.

W O L F.

FORMERLY there were many wolves in *England*.

A Wolf is a fierce and savage animal, somewhat resembling the dog in appearance.

WE are very happy to have none remaining in our country.

B A D G E R.

THE Badger is a harmless animal ; roots, fruit, grafts, insects, and frogs are his food.

THE Badger is indolent, sleeps much, and is very fat : he is not nimble to escape from danger ; but strong to defend himself when attacked.

HE burrows under ground, like the fox ; and forms several different apartments ; but with

with only one entrance. He confines himself to his hole during the whole day, feeding only at night ; he is a very cleanly animal.

BADGERS are hunted in the winter nights, for their flesh and their skin. The hind quarters are very good for hams ; the skin, dressed with the hair on, is used for pistol-furniture. The hair is used for making brushes for painters.

O T T E R.

THE Otter has web feet like those of water-fowl ; he swims and dives with great speed ; and destroys many fish. In hard weather he will kill lambs and poultry.

THE flesh of the Otter is rank and fishy. His skin is valuable ; but we use it only for pistol furniture.

THE Otter shows great sagacity in forming his habitation ; he burrows under ground, on the banks of some river or lake ; works upward to the surface of the earth, and there makes a small opening for the admission of air ; and it is observed, that the animal makes even this little air-hole in the middle of some thick bush ; in order that it may escape observation.

W E A Z E L.

W E A Z E L.

WEAZEL is the family name for several little animals; *Polecat*, &c. all of which have a strong scent.

I.

P O L E C A T.

THE Polecat is destructive to young game of all kinds; and to poultry. They generally reside in woods, or thick bushes; burrowing under ground; and forming a retreat, which commonly ends, for its security, among the roots of some large trees; they will sometimes lodge under hay-ricks, and in barns; in the winter they frequent houses, and rob the dairies of milk. They make great havock among rabbits in a warren.

THE fur of the Polecat is used for linings of muffs, &c.

F E R R E T.

THE Ferret is like the Polecat; but not wild in *England*.

II. MARTIN.

II.

M. A. R. T. I. N.

THIS is a beautiful little animal. It makes great havock among poultry, game, &c. and will eat mice, rats, and moles.

THE Martin inhabits woods, and makes its lodge in the hollow of trees. All creatures of the weazel kind have a strong scent ; that of the Martin is musky.

THE skin of the Martin is a valuable fur ; much used for linings to the gowns of magistrates.

III.

YELLOW-BREASTED M A R T I N.

THIS little creature is scarce in *England*. It builds its nest on the tops of trees ; inhabiting the fir forests of *Scotland*. The fur is valuable.

IV.

W E A Z E L.

THE Weazel destroys young birds, poultry, and young rabbits : and is besides a great devourer of eggs.

THE

THE Weazel does not eat its prey on the place ; but, after killing it, by one bite near the head, carries it off to its young or its retreat.

THE Weazel is an active animal, and runs up walls with ease ; his body is so small, that he will creep through almost any hole.

THE Weazel frequents out-houses, barns, and granaries ; where he atones for the mischief which he does among tame fowl, by doing us the service to clear those places of rats and mice.

V.

S T O A T.

THIS little animal is called *Stoat* when it is brown ; and *Ermine* when it is white.

IN cold countries, many animals change their colour in winter, and become white ; thus they resemble the colour of the ground (which is then covered with snow) and escape the sight of their enemies.

EVEN in *England* the Stoat is sometimes found white, the end of the tail only remaining black.

THE people then call it the white weazel ; but they may be distinguished by the tail,

D which

which in the weazel is of a light tawny brown.

THE Stoat haunts woods, hedges, and meadows; especially where there are brooks, the sides of which are covered with small bushes; and sometimes he inhabits barns and other buildings.

THE food of the Stoat is birds, rabbits, mice, &c.

H A R E.

THE Hare, being a weak defenceless creature, is endued, in a remarkable degree, with fear; this makes it perpetually attentive to every alarm.

THE Hare, to enable it to receive the most distant notice of danger, is provided with very long ears; which convey to it the remotest sounds.

THE Hare's eyes are very large, and prominent, adapted to receive the rays of light on all sides.

I HAVE been assured, that a Hare can see quite behind.

THE hind legs of a Hare are very long and strong, to assist it to escape its pursuers; their length gives the Hare advantage in running

ning up hill ; and the animal runs toward rising ground when started.

EVERY sportsman can relate the stratagems of the Hare ; but sportsmen may omit calling upon young people to attend to the wisdom of God, who formed the creature with such instinct for its preservation.

THE Hare very rarely leaves its seat (*form*) in the day ; but in the night takes a circuit in search of food, always returning through the same passes (*merwes*.)

THE colour of a Hare is nearly that of the ground ; which secures it from being so readily perceived by its numerous enemies.

THE food of the Hare is vegetable ; Hares do great injury to nurseries of young trees, by eating the bark off : they are peculiarly fond of pinks, parfley, and birch.

THE hair of this creature forms a great article in the manufactory of hats.

R A B B I T.

IT is observed, that those animals increase the most, which are harmless and useful.

RABBITS will sometimes have young ones seven times in the year ; and eight each time.

THUS we should be over stocked with those animals, if they had not many enemies.

HAWKS, and beasts of prey, make great havock among Rabbits.

THE fur of Rabbits forms a great article in the hat manufactory ; and such part of the fur as is unfit for that purpose, has been found to be as good as down for stuffing beds and bolsters. Rabbits burrow in the earth.

S Q U I R R E L.

THE Squirrel has its name from the form of its tail: (*a shade* and a *tail*;) as serving the little animal for an umbrella. The part is long enough to cover the whole body ; and is clothed with long hairs ; which are so disposed as to give it great breadth ; these serve a double purpose ; when erected they prove a secure protection from the injuries of heat or cold ; when extended, they are very useful in promoting those vast leaps, which the Squirrel takes from tree to tree.

THIS animal is neat, lively, active, and provident.

THE Squirrel never leaves its food to chance ; but secutes in some hollow tree, a vast magazine of nuts for winter provision.

IN the summer, the Squirrel feeds on buds and young shoots ; and is particularly fond of those

those of the fir and pine; and also of the young cones.

THE Squirrel makes its nest moss or dry leaves, between the fork of two branches.

THE feet and nails of the Squirrel are formed for climbing, or clinging to the smallest boughs; the fore feet have only four toes, with a claw in the place of the thumb.

THE Squirrel, when it eats or dresses itself, sits erect; covering the body with its tail; and making use of the fore feet as hands.

THE gullet of this animal is very narrow, to prevent it from disgorging its food, in descending of trees, or in down leaps.

D O R M O U S E.

DORMICE inhabit woods, or very thick hedges; forming their nests in the hollow of some low tree; or near the bottom of a close shrub.

THEY form little magazines of nuts, &c. for winter provision; and take their food in the same manner, and upright posture as the squirrel.

THEY make their nests of grass, and dead leaves.

DORMICE take but little food in winter; for they sleep most part of the time; retiring

into their holes early in the winter, they roll themselves up, and lie almost torpid, only reviving sometimes in a warm day, when they take a little food, and relapse into their former state.

R A T.

I.

COMMON R A T.

OUR meat, corn, paper, cloaths, furniture, in short every convenience of life is a prey to this destructive creature ; nor does it confine itself to these ; it will make equal havock among our poultry, rabbits, or young game.

THE fore teeth of the Rat are so strong that they enable it to force its way through the hardest wood, or oldest mortar.

THE Rat makes a lodge either for its day residence, or a nest for its young, near a chimney ; and improves the warmth of it, by forming there a magazine of wool, bits of cloth, hay, or straw.

RATS increase very fast ; but are so unnatural as to devour one another.

THE Weazel is the greatest enemy which the rats have.

THE *Norway* Rat has also greatly lessened their numbers ; and in many places extirpated them.

II. NORWAY

II.

NORWAY R A T.

THE large RAT, which is *called* the *Norway* Rat, has extirpated the common kind wherever it has taken its residence; but we find no benefit from the change.

THIS species burrows, like the water Rat, in the banks of rivers, ponds, and ditches; it takes the water very readily; and swims, and dives with great celerity; like the common (or black) Rat, it preys on rabbits, poultry, and all kinds of game; and likewise on grains and fruits. It increases very fast, bringing from four to eighteen young at a time.

THESE Rats are bold, and their bite is severe.

III.

WATER R A T.

THE Water Rat never frequents houses; but is always found in the banks of rivers, ditches, and ponds; where it burrows.

THE Water Rat feeds on small fish, or the fry of greater; on frogs, insects, and sometimes on roots.

IT

IT swims and dives admirably well ; and continues long under water ; yet it has not web-feet.

IV.

THE LONG-TAILED FIELD MOUSE.

THESE animals are found only in fields and gardens ; in some places they are called *Bean-mice*, from the havock they make among those seeds when first sown.

THEY feed also on nuts, acorns, and corn ; forming in their burrows vast magazines of winter provision.

THE hog often turns up the earth in search of the concealed hoards of the Field Mouse.

FIELD Mice generally make a nest for their young very near the surface of the earth ; and often in a thick tuft of grafs.

V.

SHORT-TAILED FIELD MOUSE.

THIS animal makes its nest in moist meadows ; it has a strong affection for its young ; one which was seduced into a wire trap by placing her brood there was so intent on fostering them, that she appeared quite regardless of her captivity.

THE

THE manners of this creature much resemble the last species; like it they reside under ground; and live on nuts, acorns, but particularly on corn; it differs from the former in the places which it frequents; seldom infesting gardens.

IT has been observed in housing a rick of corn, that the *dogs* devoured all the mice of *this* species that they could catch, and rejected the common kind; and that the *cats*, on the contrary, would touch none but the *common* kind.

VI.

COMMON M O U S E.

THIS timid, cautious, active, little animal, is entirely domestic, being never found in fields.

H E D G E H O G.

THE Hedge Hog is a nocturnal animal, keeping retired in the day; but is in motion the whole night, in search of food.

IT generally resides in small thickets, in hedges, or in ditches covered with bushes; lying well wrapped up in moss, grass, or leaves. Its food is roots, fruits, worms and insects.

THE Hedge Hog is a mild, helpless, and patient animal; and would be liable to injury from every enemy, had not Providence guarded

ed it with a strong covering, and a power of rolling itself into a ball ; by that means securing the under parts, which are defenceless.

WHEN rolled, it is a perfect ball covered with spines, like strong thorns ; so that no creature can touch it without wounding itself.

M O L E.

THE Mole has broad, strong, and short feet, which are inclined sideways ; answering the purpose as well as form of hands, with these the mole scoops out the earth to form its habitation, or to pursue its prey.

THE Mole flings the loose earth behind her ; her hind parts are taper and small ; enabling her to pass with ease through the earth which her fore feet have flung behind.

THE smallness of the Mole's eyes is a peculiar happiness to the animal ; had they been larger, they would have been liable to injury, by the earth falling into them : to prevent this, the eyes are not only small, but closely covered with fur ; we are likewise assured, that the animal has the power of withdrawing or exerting them, according to its occasions.

THE senses of smelling and hearing are very keen ; the one to direct the animal to its food in its dark abode ; the other to give it notice of the most distant approach of danger.

THE

THE nose of the mole is long and slender; well formed for thrusting into small holes in search of the worms and insects which inhabit them.

THE Mole makes its nest of moss, and that always under the largest hillock, a little below the surface of the ground.

THE Mole is observed to be more active, and to cast up most earth immediately before rain; and in the winter before a thaw; because at those times the worms and insects begin to be in motion, and approach the surface: on the contrary, in very dry weather, this animal seldom forms any hillocks, as it penetrates deep after its prey, which retires far into the ground. The mole skins a worm before he eats it.

MOLES injure us by loosening the roots of plants.

IT is supposed that the verdant circles seen in grass grounds, called *fairy rings*, are owing to the operations of these animals, who sometimes burrow in a circular form, which loosens the soil, and gives the rankness.

S H R E W M O U S E.

THE teeth of the Shrew Mouse point forward, so that the head of the little creature resembles that of a bird.

THE

THE Shrew Mouse inhabits old walls, heaps of stones, or holes in the earth ; is frequently found near out-buildings, hay-rick, dung-hills, &c.

IT lives on insects, corn, or any filth ; and has been observed rooting like a hog in dung-hills and necessary houses.

CATS will kill, but will not eat it.

THERE seems to be an annual mortality among these animals in *August* ; numbers being then found dead in the paths.

P I N N A T E D.

Having Fin-like Feet.

S E A L.

THE Seal has his fore feet scarcely to be seen beyond the skin ; his toes are joined by a web.

THE Seal swims and dives well : and is very bold in the sea ; swimming carelefsly about boats.

SEALS have their dens in hollow rock near the sea.

IN summer they will come out of the water, to bask or sleep in the sun, on the top of large stones, or shivers of rocks ; and that is the opportunity which our countrymen take of shooting them ; if they escape they hasten towards the water, flinging stones and dirt behind them, as they scramble along ; at the same time expressing their fears by piteous moans ; but if they happen to be overtaken, they will defend themselves with their feet and teeth.

THE fat of the Seal yields oil. The skins are made into waistcoats, shot pouches, &c. and used for covering trunks.

THE Seals rear their young at first in caverns ; and their growth is very quick ; yet they are seen suckling them in the sea.

SEALS feed on fish.

THEY are sometimes seen sleeping on rocks, and if disturbed by any thing, they tumble over the rocks into the sea.

THEY are very watchful, never sleeping long without moving ; seldom longer than a minute ; then raising their heads, and if they hear or see nothing more than ordinary, lying down again ; and so on. This precaution seems to supply the want of outward ears, which serve, in other creatures, to catch sounds.

E *WING E D.*

W I N G E D.

B A T.

I.

SHORT-EARED B A T.

WHAT is called the wing is the four inner toes of the fore-feet (which are long) joined by a membrane: which extends also to the hind legs, and from thence to the tail. The first toe is quite loose, and serves as a heel, when the bat walks; or as a hook, when it would adhere to any thing. The hind feet are disengaged from this membrane.

THIS Bat is common.

IT makes its first appearance early in the summer, and begins its flights in the dusk of the evening. It principally frequents sides of woods, glades, and shady walks; and is also frequently observed to skim along the surface of pieces of water, in quest of gnats and insects; these are not its only food; for it will eat meat of any kind that it happens to find hanging up in a larder.

THE BAT suckles its young.

TOWARD the latter end of summer the Bat retires into caves, ruined buildings, the roofs of houses, or hollow trees; where it remains the

the whole winter in a state of inaction, suspended by the hind feet, closely wrapped up in the membrane of the fore feet.

II.

THE LONG-EARED B A T.

THIS Bat is smaller; it has an inner ear which *may* serve to close the larger one in the sleeping state of this animal.



R E P T I L E S.

F R O G.

FROGS can live in water, or by land; they lay their spawn in water, and it hatches to little nimble creatures called tad-poles; which remain in the water till they become frogs.

FROGS are the best swimmers of all four footed animals; and excellent jumpers.

FROGS, as well as other reptiles, feed but a small part of the year.

THE food of the frog is flies, insects and snails.

DURING winter, Frogs remain in a torpid state.

T O A D,

TOADS are quite harmless; a gentleman kept one many years, and fed it with insects; it was so tame that it always came to the candle, and looked up, as if expecting to be taken, and brought to the table to be fed. It was fond of flesh maggots; it would follow them, and when within a proper distance, would fix its eye and remain motionless for a short time, as if preparing for the stroke, then instantaneously throw its tongue upon the insect, which stuck to the tip by a glutinous matter.

TOADS are eaten by buzzards, owls, *Norfolk* plovers, ducks, and snakes.

G I B B O U S F R O G,

Is of a pale or yellowish green, marked with rows of black spots from the head to the rump.

N A T T E R J A C K.

THIS species of Frog frequents dry and sandy places.

IT never leaps, neither does it crawl with the slow pace of a toad; but its motion is more like running.

THEY appear in the evenings.

L I Z A R D.

L I Z A R D.

ONE species is extremely nimble; in hot weather it basks on the sides of dry banks, or old trees; but on being observed immediately retreats to its hole.

I am assured that this little creature is so brittle, that if a person try to catch it, on the least touch the tail breaks.*

THE food of this species, as of all other *English* lizards, is insects. Lizards are eaten by birds of prey. All our lizards are perfectly harmless.

THE WARTY L I Z A R D,

Is so called from being covered with pimples. Many Lizards are inhabitants of the water in their larva state, and then have fins.

S E R P E N T S.

I.

V I P E R.

VIPERS are found in many parts of this island; but the dry, stony, and in particular, the chalky countries abound with them.

* This I cannot forbear mentioning as a curious circumstance, communicated to me by a gentleman of knowledge and veracity; but I hope my readers will not be induced by curiosity to make the experiment.

VIPERS do not increase much.

WE may be thankful for the blessing we enjoy ; the Viper is the only venomous animal we have.

WE are assured, that the Viper receives her young into her mouth, when they are terrified ; and they run down her throat.

FROGS, toads, lizards, mice, and moles are the food of vipers ; and sometimes young birds.

II.

S N A K E.

THE Snake is the largest *English* serpent ; being sometimes four feet in length.

THE Snake is perfectly inoffensive ; frequents and lodges itself among bushes, in moist places, and will readily take the water, swimming very well.

IT preys on frogs, insects, worms, and mice ; and considering the smallness of the neck, it is amazing how large an animal it will swallow.

THE Snake lays eggs, and that in dung-hills, and in hot-beds, the heat of which, with that of the sun, hatches them.

DURING

DURING winter it lies torpid in banks of hedges, and under old trees.

III.

BLIND WORM.

THE eyes of this creature are very small ; hence its name. Its motion is slow ; whence it is likewise called flow-worm. The flow-worm is eleven inches in length, it has a forked tongue ; and a great number of small teeth.

LIKE others of this genus, it lies torpid in winter ; they are sometimes found in vast numbers twisted together.

LIKE the black snake it is quite innocent.

THE Viper has two fangs for piercing and conveying poison into the wound ; and a bag for containing the poison ; those fangs are placed in moveable bones, which slide backward and forward ; the animal having the power to raise or let down those fangs ; which have an opening like the slit of a pen, through which the venom passes from the bladders where they grow.

THE Snake and blind worm have no such apparatus ; but are perfectly inoffensive.

I N S E C T S.

INSECTS are curious little creatures ; we meet with them every where ; they enliven our walks abroad ; and entertain us in our houses.

VERY few insects *can* hurt us ; and none ever do unprovoked. Some few have stings ; very few such as will penetrate our skins ; and those which have, are not at all disposed to exert them unless we hurt them.

T H E I R U S E.

INSECTS supply food to many birds. They destroy plants which would abound too much ; their larvæ are the food of many fish ; caterpillars, &c. are the food of most nestlings.

BIRDS are useful to us in various ways (and who does not cry out, they delight our eyes, and cheer us with their songs ?) therefore insects, which supply so many birds with food, must be allowed to be useful.

ANTS (in every state) are the food of many creatures ; and Providence hath ordained that ants should be a most numerous tribe of insects.

THE larvæ of gnats and various other insects supply abundance of food for fish, and water

water fowl. But insects are of more immediate and perceptible use. Bees collect honey and wax. The silk-worm spins silk. Cochineal is an insect. Kermes is an insect. Galls are the nests of insects. Hog-lice are used as medicine. Blister-plasters are made with an insect called the Spanish-fly.* The larvæ of gnats purify stinking water. The larvæ of flies remove stinking flesh. The larvæ of many beetles consume the gross parts of dung; and so reduce it to a state in which it is dispersed, and improves the lands.

HURTFUL INSECTS.

THERE are many insects which do us much injury, if they be very numerous; for then they consume the fruits of the earth; destroy our furniture and cloaths, &c. &c. But it is more agreeable to consider them as a beautiful and curious part of the creation; furnishing an inexhaustible source of rational entertainment; and proclaiming the wisdom of the Creator, as clearly as his larger works.

THE *holes* in old chairs, tables, &c. are made by an insect. So are the *winding furrows* under the bark of trees which are felled.

* This insect is now and then seen in *England*; and is met with on the *syringa*, *Persian* *lilac*, or *ash-tree*.

ROLLED *leaves* are sometimes the work of the caterpillars, which form for themselves a retreat ; sometimes from the leaf lice ; which thrust in their beak and extract the juice.

HOLLOW *swellings* in leaves arise sometimes from the kermes laying their eggs under the surface ; sometimes from leaf-lice.

THE young shoots of box are often formed into cups ; those are nests of the box kermes.

PARTICLES of *black dust*, like gunpowder, found under trees, (and particularly elms) are small insects.

YELLOW *edges* of the elm, the dead part appearing like a bladder, are the nest of a set of insects ; these are of the same family as the weevil, which does so much harm to corn ; others spoil the seed-beans, seed-pease, &c.

OAK *apple* is the nest of a gall insect ; of the same nature as those galls of which we make ink.

SPOTS upon leaves, which appear like harlequin comfits, are nests of insects.

ALMOST all trees are subject to *swellings* in their leaves ; these arise from insects which deposit their eggs there ; and when examined are found to contain larvæ.

COCHINEAL

COCHINEAL is foreign ; it is an insect, which becomes itself a nest for the young ; we have some of the kind.

THAT crimson *spungy* excrecence so often found on the brier, is the nest of an insect.

THE Oak nourishes fifty insects, and is the nest of several.

THE small husk at the back of oak leaves, which looks like a split pea, is the nest of an insect.

You often find a nut with a hole through the shell ; and little in it but dust ; an egg was laid in that when it was tender ; the maggot consumed the meat ; underwent its change, and escape ; sometimes you meet with the white maggot.

Most insects change ; that is, the egg does not produce a creature like the mother who laid it ; but a little *living thing* which changes to such a creature.

AN insect lays an egg.

I.

FROM that egg is produced the *larva*, or a *caterpillar* ;* which is moist, softer and lar-

* Some caterpillars are smooth and others hairy ; some of the latter when handled, cause an irritation of the skin worse than the stinging nettle.

ger

ger than the egg; is without wings, and always voracious when it meets with the food which is suited to it.

MANY larvæ have a great number of feet; others have none.

LARVA means a vizard, or mask; it likewise means *one disguised*: the future insect being in that state under disguise.

II.

THE *pupa*, or *chrysalis*, is drier and harder than the larva; confined in a narrower compass, and in some insects is naked; in others covered with a web: it often has no mouth.

PUPA means, perhaps, *babe*; may it not be so called from the resemblance to an infant in swathing bands?

III.

IN the third state the insect is perfect; it is active; lays its eggs; and in many cases provides for its future progeny.

INSECTS have antennæ in their perfect state. Most insects have two antennæ, which are composed of articulations or joints. In the lobster they may be distinguished with ease; they are vulgarly called horns; and by some feelers; but the real *feelers* (*palpi*) are fixed to the

to the mouth; generally four or six in number; and serve instead of hands; the insect making use of them to approach the food to the mouth, and sustain it while eating.

OF the usual changes which insects undergo, the *flesh-fly* is a familiar instance: this fly lays its eggs in fresh slain meat; the *maggot*, which is produced, is its *larva*, which feeds on the flesh, this is the first state of that insect; I have not seen it in the second; for (like most insects) they conceal themselves before they become *chrysalids*; in the third state the creature is a *perfect insect* like the *parent fly*.

THE Butterfly is likewise pretty well known.* The parent lays her eggs on such plants as supply proper food for the larvæ; the Butterfly's egg hatches to a *caterpillar*; when the caterpillar is full grown, it spins a covering, or wraps itself, &c. and becomes what we call the *chrysalis*; lies awhile, and comes forth an insect like its parent.

I N S E C T S.

1. SOME have horny cases to their wings.
2. SOME have cases like vellum.

* Mrs. Barbauld has impressed the metamorphosis of the lepidopterous insects on the minds of little people by her sprightly tale.

3. SOME have four tiled wings.*
4. SOME have four net-work wings and no stings.
5. SOME have four-net wings and stings.
6. SOME have two wings and two poifers.
7. SOME have no wings.

THESE are called seven *orders* of insects ; naturalists having arranged them in sets, or families, for the convenience of distinguishing them with more ease than they could otherwise do.

1. BEETLES have horny cases, to defend their tender wings.
2. GRASSHOPPERS and Crickets are of the second kind, which have cases like vellum.
3. BUTTERFLIES have tiled wings.
4. DRAGON Flies have long bodies, four long net-work wings, and no stings.
5. BEES, Wasps, and Hornets have stings, and four net-work wings.
6. FLIES have only two wings, and two poifers.

* They are covered with scales so minute as to resemble powder or down.

7. SPIDERS, Fleas, Hog-lice, and Forty-feet, are among the insects generally known, which have no wings.

THE most common insects are here chosen as examples of the *orders*, to give our little pupil a clear idea of the distinctions; a few particulars shall now be added for his entertainment.

I.

HORN CASES.

THE Dung beetle forms round balls of excrement, in which it lays its eggs.

COCK CHAFER is the brown beetle which devours the leaves; it lays its eggs in the ground; and they produce the grubs which devour the roots of grafts. In its winged state it is very troublesome about *Midsummer* to those who walk in an evening.

STAG-BEETLE has fine branching horns; he feeds on the liquor that ouzes from oaks, which he sucks: with his jaws he strips the bark from trees, and fixes himself to them, whilst he sucks the liquor with his trunk: they are common in *Kent* and *Sussex*.

THE Glow-worm is the female of one of the insects of the first order; called fire-fly.

THE Skipper, a little creature, which, when lying upon its back, springs up and turns itself.

THE Ground-beetle lives in the ground, or decayed wood, and feeds chiefly on weak insects.

THE Darkling is commonly met with in fields and gardens, amongst rubbish: it has an offensive smell, and is therefore called the Stinking-beetle: one of the kind is called the slow-legged Beetle: some of these eat bread, meat, &c.

THE Rove-beetles chiefly inhabit the dung of cows.

THE Earwig creeps into flowers (and I am told eats the bottom of the flower leaves of pinks) and spoils them; and can enter the ear so far as to injure a person, by giving intolerable tickling, uneasiness and pain; but the instances are rare.

II.

CASES LIKE VELLUM.

COCK-ROACHES are common in baker's shops, and in cellars; they feed upon all kinds of food; are fond of bread, &c.

CRICKET.

C R I C K E T.

HOUSE-CRICKETS live near ovens and kitchen chimnies ; they eat bread, meal, &c.

MOLE-CRICKET has fore feet like those of a mole, and uses them as the mole does : it lives under ground, and does much harm to hot-beds, by gnawing the roots of plants.

FIELD-CRICKET, or Grass-hopper, is voracious, and feeds upon herbs ; it has several stomachs ; and some think it chews the cud : they are of various sizes ; they leap well ; walk heavily ; but fly tolerably well.

FROG-HOPPER, or Flea-locust : of one kind the larvæ discharge a kind of froth, under which they conceal themselves from such insects as prey upon them : of another the larvæ pass a whole year under the ground ; those of the last kind make a noise like crickets.

THE Bed-bug is of this second family ; but has no wings.

LEAF-LICE live on various plants : some of the complete insects have four erect wings ; some are without : they pierce the leaves to suck their juice ; this occasions them to warp, &c.

ANTS, and the Plant-louse-lion both eat them: Leaf-lice increase very fast, and injure fruit trees very much.

THE Kermes becomes the nest of her young. Kermes lay their eggs under the surface of leaves, and occasion galls: that of the box has a different effect; the leaves bend into the form of a cup, in which the larvæ find shelter.

COCHINEAL Insect. The mother dies, after laying her eggs (and becomes the nest of the young insects) losing the form and appearance of an insect, and resembling a gall.

THE males have two erect wings: the females none.

III.

T I L E D W I N G S.

THE changes are—egg, caterpillar, pupa, winged insect.

THE caterpillar eats greedily, changes its skin often; and waits its great change under a covering of its own weaving.

THIS third order is divided into butterflies, sphinges, and moths. Butterfly flies by day. Sphinx flies morning and evening. Moth flies by night.

OF

OF Butterflies the pupæ are naked, shrouded, and suspended in the open air.

OF Sphinges the chrysalids are inclosed in a kind of covering or web; generally of coarse materials; most of them undergo their change in the earth.

THE Sphinx is called Hawk-moth.

OF Moths there are great numbers, and great variety: all spin a cod in which they are changed. The Silk-worm is a Moth; a native of *China*; others make cods nearly resembling those of the Silk-worm, but of coarser materials: some join to their thread pieces of wood, dry leaves, &c. Some spin under ground; joining, by means of their thread, particles of earth.

OF the Butterfly the wings are erect when fitting.

OF the Sphinx the wings are drooping when at rest.

OF the Moth they are in general drooping when at rest.

THE Caterpillars of some Butterflies have two horns in their necks, which they can shoot out, or draw in.

OF

Of Sphinges, the Caterpillars are mostly smooth, or without hair; and they have a horn near the tail end.

Of Moths the Caterpillars vary very much.

Of one set the Caterpillars roll up and fasten leaves together, living and feeding within.

Of another the Caterpillars keep always under a covering, where they live and feed in security; some roll up leaves; others lodge themselves under the outer skin of leaves, feeding on the inner: others in woollen cloths, skins of beasts and birds, &c. and some few live in society under a web formed by their joint industry.

Of Moths the pupæ are either simple, or have a kind of hook at their extremity; they are all inclosed in a web or covering. Of those which pass that state under the ground, the webs consist of coarse materials. Those which are fixed to the under sides of branches of trees, walls, &c. have generally more silk.

Of Butterflies the chrysalis are angulous. Of Moths generally oblong ovals. Some Moths do not eat in the moth state; the silk worm does not.

I HAVE observed some Butterflies to pass the winter in the winged state; *torpid*, if suffered to remain fixed in a retired spot, but if brought

brought into a room reviving when the sun shone ; sinking again into a torpid state, when the room became cool.

ALL these insects lay their eggs upon such plants as the Caterpillars (which spring from them) should feed upon. Caterpillars eat a great deal, grow very fast, and change their skin several times ; when they are full grown they change to the chrysalis ; which is at once the tomb of the Caterpillar, and the cradle of the Butterfly.

THEY are various in their manner of waiting the great and last change. Some spin a covering ; some suspend themselves by the tail ; some mix sand with their gluey substance, and incrust themselves ; some (that lie but a few days) diffuse their glue on a tender leaf, which closes and withers, and enwraps them as a mantle ; some build in wood ; such as feed on willow leaves, break the tender twigs, and pound them, and with their glutinous silk make a paste and wrap themselves ; some pass that state under ground. They differ much in their time of lying.

SOME continue ten days ; some twenty days ; some several months : most of those which are in *cones* but a few days.

ONE is a Caterpillar all the winter ; some pass the winter, a number together,* wrapped in a web of their own spinning, lying in a torpid state : but in general they pass that gloomy season in the egg, or as chrysalids, coming forth in spring or summer as inhabitants of the air, to feed on the dews of Heaven, and the honeyed juices which are distilled from every flower.

See Hymns in Prose, Page 91.

IV.

NET-WORK WINGS, and no STING.

DRAGON FLIES are voracious insects ; one set of them live chiefly upon Moths ; and the other upon Flies : they lay their eggs in standing waters ; both larvæ and chrysalis devour insects voraciously ; the chrysalis of the largest wears a mask upon its neck, which it can move, and which serves to hold its prey whilst the insect devours it.

* We are told, that these large bags, which are sometimes seen in hedges during winter, are the joint work of the Caterpillars which they contain ; and that the Caterpillars are the larvæ of the brown-tail Moth, which made such depredation, and occasioned so much consternation in the neighbourhood of *London* a few years since.

MAY

M A Y F L I E S.

MAY Flies are called *ephemeræ*, or *day flies*, from their short continuance in the winged state; but the lives of many do not even extend to a day; some continuing but an hour; some even less: they lay their eggs in rivers, and the larvæ scoop themselves out dwellings in the banks: they pass three years in that state; the perfect insect is food for Swallows and other birds; those which have laid their eggs die, and dropping into the water, supply food for the fish. In a province of *Germany* they are so very numerous, that the peasants manure their land with them.

S P R I N G F L Y.

Of which the smaller kind much resemble some of the Moths, lay their eggs in running waters; the larvæ live in the winter in tubes of silk, covered with small pieces of wood, sand, &c. and are called by fishermen cod-bait. The flying insect settles in the sides of walls, branches of trees, &c. in the shade; seldom flying in the day; swallows feed upon them.

V.

NET-WORK WINGS and a STING.

IN the greater number of these insects the sting only serves for depositing the eggs.

G A L L

G A L L F L Y.

THERE are several which have their nests on the oak. What we call the oak-apple is one ; and of the same kind with those which are used in making ink.

I C H N E U M O N F L Y.

THE body and tail seem to be separate, only connected by a thread ; their antennæ are in almost constant motion ; they destroy Caterpillars, Plant-lice, and other insects in abundance. Some lay their eggs upon Caterpillars ; some in the eggs of Caterpillars ; others in Plant-lice ; one lays in the gall of the oak ; the larva devours that of the gall-insect, and comes forth to puzzle and surprise the inexperienced naturalist.

W A S P.

SOME Wasps live in society, some not. The common Wasps make combs in the ground : one large Wasp, which has lived out the winter, builds a few cells and lays some eggs : the Wasps which are produced from them go to work : they saw wood from posts and window frames ; hew it into small pieces, and cement it with glue from their bodies. The cells are for the reception of the young ; in each the queen lays an egg, which hatches into

into a worm; the worms are fed with great care by the first hatched Wasps; each spins itself a covering, and lies about a fortnight; then changes to a Wasp.

WASPS eat fruit and meat; steal honey, and kill Bees; but, in return, they hunt the blue-bottle Flies, which spoil meat, by laying their eggs in it.

LATE in the year the Wasps fight and destroy each other, so that few are left.

THE small Wasp (which is blacker than the common one) is called the solitary Wasp. The mother lays one egg, deposits several worms to serve for food to her young, and dies.

THE smallest Wasp is the aërial one; this makes a nest of wood in the form of a large opening rose; it is fixed on the branch of a tree.

H O N E Y B E E.

THE queen is a large Bee, who is the mother of the rest.

THE working Bees roll themselves in flowers; the dust sticks to their hairy bodies; they then brush themselves with their legs, and

lodge this powder upon their thighs ; when they are loaded, they return home : other Bees meet them, swallow these pellets, and after a while, bring them up again turned into wax. The honey they collect and carry home in one of their stomachs ; it is taken from the honey-cup of flowers by a sort of trunk. The queen lays all the eggs ; they go through the same changes as the wasp : the Bees feed the maggot with a mixture of honey and wax (from their stomachs) which is called *bee-bread*. When the hive is too full, a young queen and a number of Bees remove : this is called swarming.

L E A F C U T T I N G B E E.

THESE cut pieces of leaves and line their nests with them ; laying up food for the future young ones : it is very common to see the rose-tree leaf cut by them.

THE Upholsterer-bee uses the leaf of the corn-red poppy, and poppy. The Mason-bees use a sort of mortar made of earth, and place their *cradle* against a wall in the sun. The Wood-bee scoops rotten wood, and there makes a nest. The Humming-bee is otherwise called Moss-bee, those Bees making their nest of moss, many creatures rob them of their honey.

A N T S.

A N T S.

THE working Ants have no wings ; a few of the working Ants live through the winter ; but they pass that season in a torpid state. The working Ants take great care of the eggs (which are laid by the winged ones) and of the larvæ and chrysalids : the chrysalids are white, and look like grains of corn : the Ant may be seen through them. The common people call them ants eggs ; but they are larger than the Ant itself : many birds are very fond of them. Ants eat flesh ; they will devour a mouse in a few hours ; they carry corn, fruit, and dead insects to their nest ; but they are for immediate use ; and particularly to feed the larvæ with ; in our country Ants do not lay up provision for winter. Ants are very fond of the honey-like liquor emitted by leaf-lice ; and, I believe, carry home the leaf-lice themselves : Ants eat Caterpillars. The Ant-eater* devours the Ants ; which it takes in a pit-fall formed in the sand. Ants fall a prey to birds likewise.

* *Myrmeleon Formicarum* of *Lin.* No. 3.

Le Lion des Fourmis, or Fourmi-lion of *Barbut*. Order iv. genus 5. " The larva of the Formicales is very fond of Ants, which it hunts after ; so that it has been thought this insect could not be pointed out better than by calling it the Lion of the Ants, or Ant-eater." — *Barbut*.

VI.

T W O W I N G S and P O I S E R S.

G A D F L Y.

THESE lay their eggs about cattle; some under the skin of cows or oxen; which they pierce for that purpose; others enter the intestines of horses to lay their eggs: and others the nostrils of sheep; in these habitations the larvæ remain till full grown; when they let themselves fall to the earth, and generally pass the chrysalid state under the first stone they meet with. Those larvæ which are hatched in the skins of beasts, feed on the matter of the wound. One sort of Gad-fly lays its eggs in the throat of the stag, creeping in at the nose.

C R A N E F L I E S.

THESE resemble gnats; but they do not bite as gnats do; they have not the trunk with which gnats are so apt to tease us.

F L Y.

THERE are great variety of Flies. The larvæ of some devour the leaf-lice; others live in and consume all kinds of putrid flesh; others are found in new cheese; others in the excrement of different animals; many live in

in water, and prefer the most stinking and muddy.

BURREL OR WHAME FLY.

THESE nourish themselves with the blood of horses and cattle, which feed in meadows ; their bite is so painful, that the poor animals run about as if they were mad.

G N A T.

THE Gnat lays its eggs in standing water ; every body may have an opportunity of observing its changes, which are very curious. In the summer, if water be exposed a few days in a tub, and some taken into a glafs, the larvæ may be seen with the naked eye ; they continually rise to the surface of the water to breathe ; as soon as they become chrysalids, they keep at the surface of the water to draw breath ; they do not then eat any thing ; but if the water be moved, they unroll themselves and plunge to the bottom ; after three or four days they become Gnats. The covering which they burst becomes a sort of ship, on which the insect floats till it can rise into the air ; when the Gnat spreads his wings for that purpose, a breath of wind would overset him, and he would perish : he can no longer live in water ; but is fitted to be an inhabitant of air. The glafs must be open at the top ; if they

be in a phial, it is difficult for them to escape, and many will be drowned. Every body knows that Gnats live by sucking blood.

B U Z Z F L Y.

SEVERAL kinds are very common about *March* and *April*; they are generally found upon flowers, in woods and marshy grounds; one kind sometimes hovers about the flowers in gardens, and sips the honey-dew without settling, keeping a continual flutter. Some authors call it the Flower-breeze.

H O R S E F L Y.

ONE called *horse-leech*, is so hard that it is very difficult to crush it; and sticks so close to the horses or cows with its claws, that the poor animals cannot rub or bite it off without wounding themselves.

VII.

W I T H O U T W I N G S.

B O O K - W O R M.

A NIMBLE little creature, which appears silvery and scaly; has six feet; three bristles as a tail, and two long and two short horns; has no *English* name (though called by the common

common people Book-worm) but is very commonly met with; they are supposed to live upon Wood-lice, or by sucking the moisture of the wood under which they live: they are found in gardens, under boxes, and in the crevices of window sashes.

L O U S E.

A CURIOUS naturalist nursed a Louse in the stocking which he wore; and found, by computation, that in eight weeks a Louse might see five thousand of its descendants.

THEY are hatched from an egg perfect insects, and only increase in size.

ALL the rest of this seventh set are likewise produced in their perfect state, except the flea.

F L E A.

FLEAS lay eggs at the bottom of the hairs of animals, and on blankets; in four or five days, the egg being hatched, produces a little nimble larva, that feeds on greasy down. When touched, it rolls itself up into a ball. After it has crept for some time, with great swiftness, it spins a small downy covering, which it is careful to keep in concealment. A fortnight after it issues from its tomb, under the form of a Flea. The larvæ may be nourished

rished in a box, and fed with flies, of which they are very fond. A Flea leaps to a height equal to two hundred times that of its own body.

T I C K.

THERE are variety of Ticks, some living in woods ; one under water ; one under stones ; but the greater part live upon other creatures ; dogs, birds, flies, and insects of the first kind.

A FILTHY disease, called the itch, is supposed to be nothing else but small ticks which work themselves under the skin.

H A R V E S T M A N.

Or, Long-legged Spider.

Most of these shun the light; many devour ticks, wood-lice, spiders, &c. The abundance of webs which are seen in autumn in the fields, are supposed to be the work of this Spider ; or of a sort of tick called autumnal weaver.

S P I D E R.

THERE is great variety of Spiders : all have eight eyes. At the end of the Spider's feet are sponges full of clammy liquor, by which

which it is enabled (like flies) to climb up glass, &c. The Spider has six openings, from which proceed her threads, each thread consists of a thousand; so that the thread which we esteem so fine, is really six thousand threads. Garden Spiders wrap their eggs in a ball of silk which they bear about with them: some kinds fix the bag in which the eggs are contained in a corner. A pair of stockings and a pair of gloves have been made of Spider's bags. Birds are very fond of Spiders, and of young ones particularly; often robbing the mothers of their bag. One kind of Spider flies in the air, as with a balloon, which occasions the loose threads that abound in the lanes in autumn.

SPIDERS prey upon all weaker insects; even those of their own species.

C R A B.

THERE are several kinds of Crabs and Lobsters besides those which are brought to table.

SOME small Crabs, whose shells are tender, are directed by instinct to shelter in Muscles, others in Oysters, and the like shells. The Pea Crab inhabits the Muscle: the surfeit which sometimes proceed from eating those fish, is by fishermen imputed to the Crab, which

which they *imagine* is poisonous; but naturalists deny it: Lobsters change their shell every year, and grow only whilst their shell is soft; they seek some lonely place for fear of being devoured by such of their brethren as are not in the same weak situation. Lobsters and Crabs renew their claws if they be torn off by accident: they are very voracious, and feed on sea-weeds, garbage, and on all sorts of dead bodies.

THE HERMIT CRAB.

THIS has a naked tail, with a hook at the end of it, by which it secures itself in its lodging, which is an empty shell, (often of the whelk.) It is sometimes called the Soldier-crab.

HOG-OUSE.

WE have two distinct sorts: one of a greyish lead colour; the other almost black, which rolls up when touched: they are both found under stones, rotten wood, and dung-hills.

SCOLOPENDRA.

A COMMON insect under stones, or blocks, &c. in gardens: it has a flat body and a great many feet: hence called by the common people

ple forty feet;* it is very nimble: there is one of the kind which lives in sea-water, and builds a little cell.

J U L U S.

THIS is called the Gally-worm; one which is often met with under stones, has one hundred feet on each side; they are very short, and close set. There is a larger found in the same places, which has one hundred and twenty on each side: this rolls itself when touched.

T H E E N D.

* It is called Centipede from its numerous feet.

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